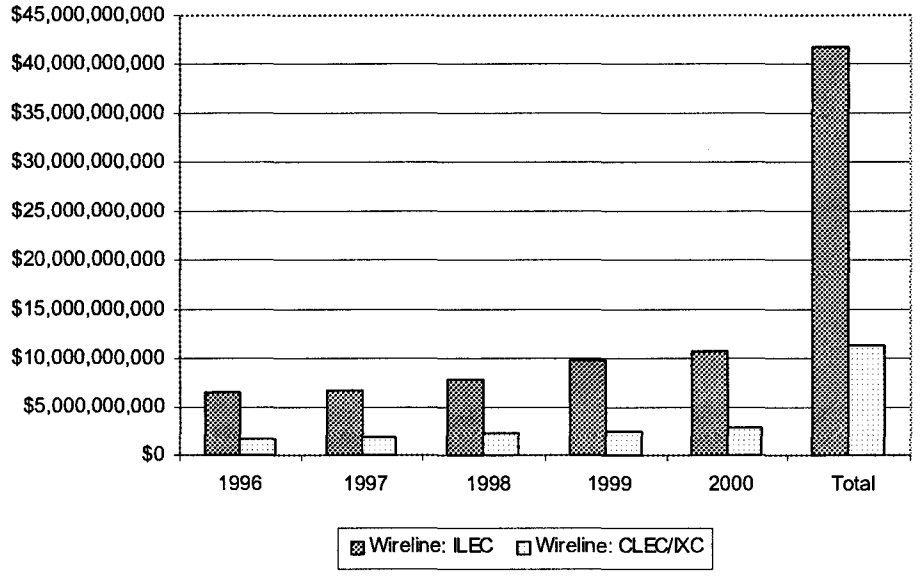
***Total Operating Revenues in California*** – Responses to the CPUC data request provided information about operating revenues earned by ILECs and CLECs/IXCs. Total operating revenues are the sum of local, local toll, and long distance revenues. Total operating revenues are a measure of industry-wide competition because they aggregate individual revenue streams, thus enabling overall earning differences to be examined. Between 1996 and 2000, $41.7 billion in total operating revenues were reported by ILECs while $11.4 billion were reported by CLECs/IXCs. Both ILECs and CLECs/IXCs earned their greatest total operating revenues in 2000, $10.7 billion and $2.8 billion respectively. They each earned the least in 1996, $6.5 billion and $1.7 billion.

During this period, ILEC total operating revenues grew by 66 percent and CLEC/IXC revenues grew by 61 percent. Thus, ILECs are still dominant in terms of revenue share but CLEC/IXC operating revenue growth was almost equal to ILECs.

**Figure 3.20**
**Total Operating Revenues in California, 1996-2000**




Source: CPUC Data Request

# Chapter 4: Wireless and Advanced Telecommunications Markets

## I. Chapter Overview

Chapter 4 provides an overview of the competitiveness of wireless and advanced telecommunications markets. As illustrated below, in addition to offering local and long distance services, major telecommunications carriers operating in California are also offering wireless and advanced services.

**Table 4.1: Services Offered by Carriers**

| | Local | Long Distance | Wireless | Advanced Services |
|---|---|---|---|---|
| AT&T | X | X | X | X |
| Citizens | X | X* | | X |
| Cox | X | X | | X |
| Pacific Bell | X | | X* | X* |
| Qwest | X | X | X | X |
| Roseville | X | X* | X* | X |
| Sprint | X | X | X | X |
| Verizon | X | X* | X | X* |
| Worldcom | X | X | X | X |

*Source*: CPUC Data Request and individual company websites.
* Carriers provide these services via affiliates, parent companies, and/or arrangements with other carriers (in some cases with limited shared resources).

## II. Wireless Services: A Growing Market

The wireless market in California is demonstrating some increases in competitive activity. While competition may not have fully arrived, at least five providers are active in each of the state's area codes. Moreover, data shows that no one carrier dominates the California market with the top carrier on average holding 34 percent of the numbers assigned to wireless customers. Despite the presence of multiple carriers, the wireless industry is highly concentrated with the same core wireless providers active in each area in California as well as nationally. Five carriers control approximately 97 percent of the telephone numbers assigned to wireless carriers.

The wireless market is also a growing one, with subscribership and revenues both experiencing substantial growth in the past five years. At the end of 2000, over 12.6 million customers subscribed to 10 wireless carriers in California. This represents a 48 percent increase in subscribership from 1999 to 2000. Nationally, wireless subscribership grew by just 27 percent over the same time frame. Revenue

growth in the wireless industry has been correspondingly dramatic. CPUC retail revenue data indicated a net increase of 33 percent in California wireless revenues over a three-year period from 1998 through 2000, from $4.3 to $6.5 billion, with 36 percent revenue growth in 2000 alone.

When compared to the wireline sector, the California wireless market is growing much faster in terms of customers and revenues. In 2000, there were half as many wireless subscribers as there were wireline subscribers, while in 1999 there were just one-third as many wireless subscribers.[57] In terms of retail revenues, wireless carriers earned 60 percent as much as wireline did in 1998, 74 percent as much in 1999, and 87 percent as much in 2000.[58]

## A. Competition Among a Core Group of Wireless Companies

### *i. Subscribership: California Growth Outpacing Nation*

California wireless subscribership experienced significant growth and outpaced the nation from 1999 through 2000. Based on FCC data, Table 4.2 demonstrates that 10 wireless providers in California had more than 12.6 million subscribers in December 2000. This represents a 48 percent increase from the 8.5 million wireless subscribers a year earlier. In comparison, the number of customers subscribed to the 77 large wireless carriers in the U.S. increased by only 27 percent between December 1999 and December 2000.

[57] Due to differences in data availability, wireless subscribership is based on number of customers while wireline subscribership is based on number of lines. In 2000, there were 12.6 million wireless subscribers compared to 25 million local wireline telephone lines. In 1999, there were 8.5 million wireless subscribers and 24.1 million wireline local lines.
[58] Retail revenues are derived from surcharge billing activity. Wireline carrier groups include CLECs, IXCs, and ILECs.

| Table 4.2<br>Wireless Subscribers in California and the U.S.,<br>December 1999 and December 2000[59] | | | |
|---|---|---|---|
| | *Number of Reporting Carriers* | *Number of Subscribers* | *Percent Increase From Previous Year* |
| *California* | | | |
| December 1999 | 11 | 8,544,941 | |
| December 2000 | 10 | 12,649,508 | 48% |
| | | | |
| *Nationwide* | | | |
| December 1999 | 76 | 79,696,083 | |
| December 2000 | 77 | 101,212,054 | 27% |

### *ii. Revenues: 33 percent Growth Over 3 Years in California*

CPUC data, which is derived from surcharge billing activity, indicates that California wireless retail revenues grew by 33 percent between 1998 and 2000 with a three-year total of $15.7 billion.[60] Nationally, a survey by the Cellular Telecommunications & Internet Association (CTIA) reported dramatic national growth in wireless revenues based on responses by over 2,000 U.S. wireless service providers.[61] The survey concluded that annual U.S. revenues increased from less than half a billion in 1985 to over $52 billion in 2000.[62] California's wireless carriers earned approximately $6.5 billion in 2000, or 13 percent of industry revenue nationwide.[63]

### *iii. Telephone Numbers: 5 Plus Wireless Carriers Competitive in Each Area Code*

Numbering data is another source of competitive information about the wireless industry. This analysis uses shares of assigned telephone numbers as a measure of the portion of customers that wireless companies have.

Competition among wireless carriers looks different from competition among ILECs and CLECs that provide traditional telephone service. As indicated in Chapter 3, ILECs hold the vast majority of numbers assigned to customers for local service, while the competitors vie for a relatively small share

[59] Source: *Local Telephone Competition Status As of December 31, 2000,* p. 3 and Table 9 as well as FCC Form 477 data as of December 1999 and December 2000 for companies operating in California.
[60] Combined California PUC Telephone Surcharge Transmittal forms (as of October 23, 2001).
[61] The CTIA is an international organization that represents all elements of wireless communications. CTIA conducted this survey in December 2000 and received an 86.5 percent response rate from 2,111 of 2,440 service providers in the United States. http://www.wow-com.com/industry/stats/surveys/
[62] Ibid.

of assigned numbers. In contrast, numbers assigned to wireless customers are distributed more evenly across a core group of competitors.

At least five wireless carriers have numbers assigned to customers in each of California's 25 area codes. These wireless carriers include: Nextel, Sprint, Cingular Wireless, AT&T Wireless, and Verizon Wireless. Moreover, seven area codes have between six and eight wireless carriers. In each area code, the top wireless provider holds no greater than 42 percent of the numbers assigned to wireless customers. On average, the top number holder in a single area code has 34 percent of the numbers assigned to wireless customers, and the second and third carriers have 26 percent and 18 percent respectively. As illustrated in Table 4.3, no one carrier dominates the California wireless market.

**Table 4.3**
**Percentage of "Numbers Assigned to Wireless Customers"**
**For the Top 5 Wireless Providers in Each Area Code**

| | |
|---|---|
| ***Highest percentage of numbers assigned to customers for any one provider in a single area code*** | 42% |
| ***Numbers assigned to customers for any one provider:*** | |
| Average highest percentage | 34% |
| Average 2nd highest percentage | 26% |
| Average 3rd highest percentage | 18% |
| Average difference between highest & lowest | 26% |

Source: July 2001 Numbering Resource Utilization Forecast

While no one dominant carrier exists, staff observes that the same five carriers are typically the largest five wireless providers in 20 of 25 area codes statewide. In the State overall, these five carriers control at least 97 percent of the numbers assigned to wireless customers. Of these five carriers, all but one (Nextel) is affiliated with either an ILEC or an IXC. So while competition appears to be thriving among these providers, the industry actually is concentrated among a core group of carriers.

With five wireless providers in each area code, California compares favorably to the nation as a whole. Approximately 75 percent of the U.S. population has access to five or more wireless carriers.[64]

[63] Combined California PUC Telephone Surcharge Transmittal Forms, as of October 23, 2001.
[64] Keith Dawson, CommWeb, Snapshot of the Wireless Industry, July 2001.

## B. Comparisons Between Wireline and Wireless Sectors

### *i. Subscribership: Wireless Already Over Half the Subscribers of Wireline*

Wireless telephone use is growing in California. Drawing together data provided earlier in this report, California's wireless carriers had half as many customers as California's wireline carriers in December 2000, with 12.6 million wireless customers as compared to 25 million wireline local telephone lines. A year earlier, there were approximately one-third as many wireless customers as compared to wireline local lines.

### *ii. Revenues: California Wireless Carriers Earned More Than CLECs and IXCs From 1997 Through 2001*

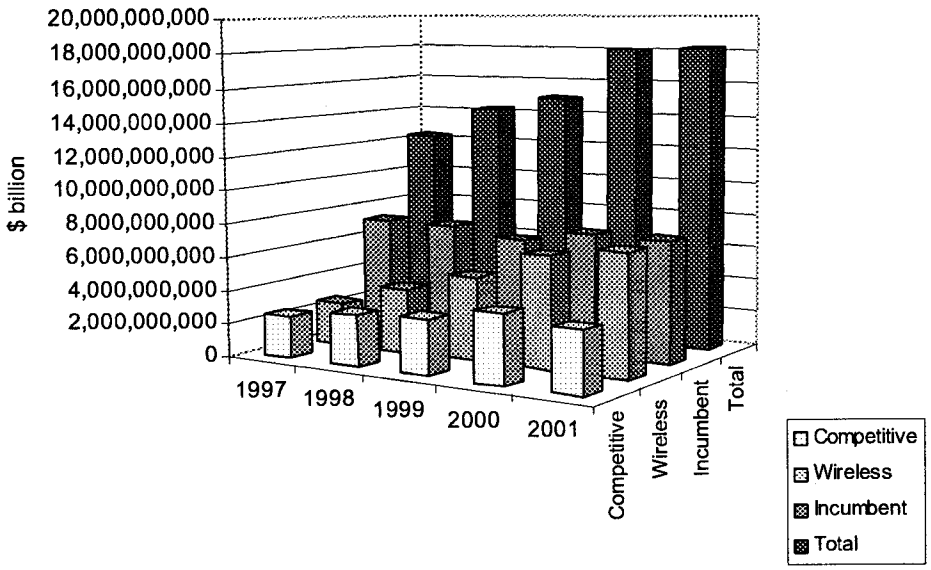
As indicated in Figure 4.4, wireless carriers earned more from retail customers than CLECs and IXCs combined [65] and less than ILECs each year from 1997 through 2001. In 2001, retail activities generated approximately $7.2 billion for wireless carriers, $3.7 billion for CLECs/IXCs, and $7.3 billion for ILECs in 2000.[66] Over the entire five-year period, wireless carriers earned 71 percent of what ILECs did from retail activities.

With steady growth in retail revenues between 1997 and 2001, California wireless companies earned approximately 36 percent of what ILECs had earned in 1997, $2.6 billion for wireless carriers as compared to $7.2 billion for ILECs. By 2001, wireless firms and ILECs were earning nearly the same amount, approximately $7.2 billion, from retail customers. The greatest growth over the five-year period for wireless carriers was 51 percent between 1997 and 1998. Wireless revenues grew at the slowest rate, 8 percent, between 2000 and 2001.

When comparing wireless companies to all wireline carriers combined (ILECs, CLECs, and IXCs), wireless companies earned almost half (49 percent) as much as wireline companies did from 1997 through 2001. During this period, wireless retail revenues grew by 180 percent and totaled $25.3 billion while wireline companies retail revenues grew by 12 percent and totaled $52.2 billion.[67]

[65] Staff cannot separate retail revenue earnings between CLECs and IXCs. CLEC/IXC is used to denote this constraint.
[66] 2000 was the peak earnings year from surcharges for all carrier groups. See also Table 3.18 in Chapter 3.

**Figure 4.4**
**California Telecommunications Retail Revenues***



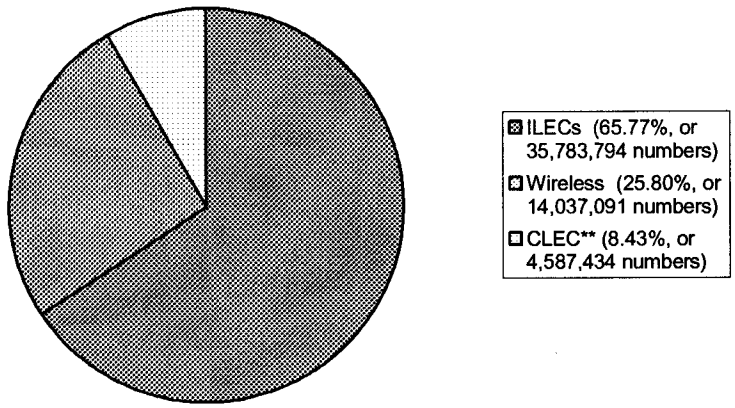

Source: Combined California PUC Telephone Surcharge Transmittal Forms, as of October 23, 2001
* Retail revenues represent the amount billed by carriers to retail customers, subject to CPUC surcharges. Retail revenues do not include the amount earned from wholesale customers.

In summary, wireless carriers saw more dramatic growth than CLEC/IXCs and ILECs in their portion of retail revenues, nearly tripling from $2.6 billion to $7.2 billion. In 2001, wireless carriers were on par with ILECs, each earning roughly 40% of total retail revenues. However, the growth in wireless retail revenues may be a result of increased end-user fees and not just customer growth alone.

### *iii. Telephone Numbers: Wireless Has Second Largest Share in California*

Numbering data provides insights about the relative market relationship between wireline and wireless sectors. Wireless carriers held 25 percent of assigned numbers in California, or 14 million of 54.4 million assigned numbers as of year-end 2000. As illustrated in Figure 4.5, wireless carriers had more than three times the assigned number holdings that CLECs hold and have nearly 40 percent as many assigned numbers as ILECs.

**Figure 4.5**
**Phone Numbers Assigned in the State of California (54,408,319 Numbers Total)**
**As of December 31, 2000***



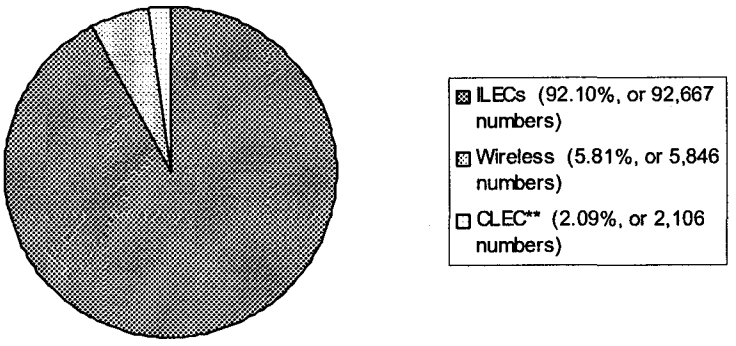

* Paging carriers not included.

**CLEC data includes a small amount of Competitive Access Providers (CAP).

Staff also analyzed wireless carrier numbering holdings for regional trends. In the service territories of both the large and mid-sized ILECs, wireless carriers share similar number inventories as the overall California numbering distribution.

In rural California, however, wireless carriers serve a much smaller percentage of assigned numbers. ILECs are the dominant carrier group in rural parts of California, with 92 percent of assigned numbers as of year-end 2000. As shown in Figure 4.6, wireless carriers held approximately 6 percent of assigned numbers and around three times more numbers than CLECs in California's rural areas. Wireless and wireline carriers face similar challenges, including dispersed populations and economies of scale, in California's rural areas.

**Figure 4.6**
**Percent of Total Numbers Assigned**
**In Rural Rate Centers (100,619 Numbers Total)**
**As of December 31, 2000***




*Paging carriers not included.
**CLEC data includes a small amount of CAPs.

### *iv. Wireless Potential Substitute For Wireline*

As the wireless market matures, wireless services have the potential to become an acceptable substitute for wireline telephone services. Wireless carriers often package local, toll, and long distance services together for sale to customers and some customers may rely on these services, at least part of the time, instead of those of ILECs, CLECs, and/or IXCs. For example, wireless customers with plans offering large numbers of "free" long distance minutes may use wireless phones for calls previously made using wireline phones. Transient types of customers, such as students or frequent business travelers, may be among the first customers to forgo landline service in favor of a wireless alternative.

However, wireless services are not functionally equivalent to traditional telephone service and their pricing structures vary widely. Wireless service is typically sold in packages combining local, long distance and custom calling features, whereas customers can purchase these elements on a stand-alone or combined basis from wireline carriers. Local wireline service typically includes unlimited local calling for residential customers, whereas most wireless plans offer a finite number of minutes. On the other hand, the local calling scopes of wireless customers generally are vastly larger than that for wireline customers.[68] Wireless service does not provide 100% calling coverage (though this is improving), wireless call clarity is often worse than wireline clarity (though this too is improving), and

[68] This is especially true in California, which has a uniform statewide local calling radius for wireline incumbent carriers of only twelve miles, among the smallest in the nation.

wireless 911 services are inferior to wireline 911 service.[69] Finally, as is discussed in Chapter 5, wireline customers can transport their phone number to a different local provider of their choosing, while wireless customers are not able to transport their phone number from carrier to carrier.

Thus far, California data on substitution is anecdotal. Only a few wireless customers have yet to market themselves as explicit alternatives to the traditional landline. A recent entry into California's wireless market, Leap Wireless doing business as Cricket Communications, takes this approach. As of July 1, 2001, Cricket was preparing to offer service in the 209 and 559 area codes in California. The Cricket phone services is priced at a flat rate similar to landline local flat rate pricing. [70]

A second carrier, Western Wireless, is positioning itself in direct competition with rural ILECs. Western Wireless offers basic local telephone service through a Wireless Local Loop and has been designated as an Eligible Telecommunications Carrier for universal service purposes. Western Wireless cites several examples of capturing substantial numbers of rural customers through offering an expanded local calling area, thereby saving rural customers money.[71] In 2000, Western Wireless began serving customers in the Bishop and El Centro areas in California's 760 area code.

## C. Other Wireless Opportunities & Challenges

The wireless industry is in the midst of a transition, from focusing primarily on voice services to adding new service packages and product lines. These new business areas include wireless data services, pre-paid calling plans, and disposable phones. Sprint PCS began offering Internet access via its wireless phones in 1999. Other providers have followed suit `with both AT&T Wireless and Verizon Wireless now offering Internet access in the U.S.

Wireless companies also face challenges to growth and sustainability, including: uncertain demand for new products and services; customer concerns about privacy, security, and service reliability; the existence of multiple wireless standards[72]; and
bandwidth availability. In telecommunications, ***bandwidth*** is the width of a communications channel and the amount of data that can be transmitted in a fixed amount of time.[73]

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[69] Wireline 911 service allows emergency providers to pinpoint the exact location of the telephone from which the call is placed. Wireless 911 service only allows emergency providers to identify the general location of the mobile telephone.
[70] October 22, 2001 Comments of Leap Wireless in FCC WT 01-184.
[71] October 22, 2001 Comments of Western Wireless in FCC WT 01-184
[72] See Appendix D for a description of Wireless Standards.
[73] (a) Harry Newton's Telecommunications Dictionary, 16th Edition, page 101; (b) www.webopedia.com

In California, bandwidth is a particularly significant issue as wireless growth largely depends on the availability of additional spectrum. Commercial providers must compete with one another, broadcast radio and television, national security, and educational uses. In addition, battery power is a significant challenge to companies seeking to produce next generation wireless devices.[74]

## III. Advanced Services

### A. Overview of Advanced Services

Digital Subscriber Line (DSL), cable modem, and broadband wireless are various types of high-speed advanced services, commonly known as broadband access services that exist today.[75] For this report, staff focused on the mass market segment of the advanced services market, namely residential and small business customers that use DSL and cable modem technologies and, to a much more limited extent, satellite and fixed wireless services. In order to analyze the DSL and cable modem markets, staff utilized data from the FCC and from several California companies. While this report presents an overview and limited market analysis of California's broadband services, future reports may provide more in-depth analysis of advanced services for an expanded scope, incorporating such elements as the higher end segment of the broadband market (e.g., medium and large business customers that use T1 and T3 facilities).

Advanced services enable users to send and receive large amounts of information quickly. While neither the CPUC nor the FCC has precisely defined high-speed broadband access, there is general understanding that such services offer consumers access to telecommunications services at speeds in excess of 200 Kpbs to facilitate the transmission of voice, video, graphics, and data.[76]

Broadband refers to a variety of technology platforms that facilitate high-speed data transmission including copper wire, coaxial cable, fiber optic cable, and wireless channels.

The FCC reported that 56 percent of the U.S. population had the ability to obtain high speed Internet *access* in the year 2000. While 98 percent of Internet users in the U.S. accessed the Internet through

[74] Jupiter Media Metrix, Building the Internet: Trends Report 2001, "Trends Shaping the Digital Economy."
[75] The FCC uses the term advanced services to classify high speed telecommunications options that enable access to services, such as video, that are on the broadband network.
[76] FCC, Wireline Broadband NPRM (formally: In the Matter of Appropriate Framework for Broadband Access to the Internet over Wireline Facilities Universal Service Obligations of Broadband Providers Computer III Further Remand Proceedings: Bell Operating Company Provision of Enhanced Services; 1998 Biennial Regulatory Review - Review of Computer III and ONA Safeguards, CC Docket No. 02-33 CC Docket Nos. 95-20, 98-10), March 14, 2002.

dial-up service in 1999, the FCC anticipates that approximately 50 percent of such users will have high-speed connections by 2004.[77]

## B. Advanced Services Competitors

As shown in Table 4.1 at the beginning of this chapter, various incumbents, competitors, and long distance companies (ILECs, CLECs, and IXCs) have diversified their traditional telecommunications offerings and have become competitors in the advanced services marketplace. In addition to ILECs, CLECs, and IXCs, the following types of companies actively provide advanced telecommunications services (in some cases in addition to voice telecommunications services) throughout California.

***DLECs (Data Local Exchange Carriers)*** – The TA '96 encourages the deployment of advanced telecommunications capability. DLECs are those carriers that deliver high-speed data transmission service but not voice service. Typically, DLECs deliver services such as high-speed access to the Internet. ILECs and CLECs may have DLEC functions or subsidiaries. DLECs operational in California include Covad Communications Company and Pacific Bell's data affiliate Advanced Solutions Inc., (ASI).

***Cable Providers*** – Cable providers offer a variety of voice and data services to customers over a network that uses coaxial cable instead of copper wires. Despite the technical differences, cable can directly compete with ILECs in the provision of voice and data services. Residential customers are a particular market segment targeted by cable providers because cable video services already go to many homes across the nation. Cable providers such as AT&T, Cox Communications, Comcast and Cablevision offer residential telephone and data services in a number of U.S. markets.

***Wireless Broadband Providers*** – Carriers may provide broadband service using fixed wireless or satellite technology. Fixed wireless technology can offer services to large geographic areas with a modest investment. Since no new infrastructure is required, fixed wireless is particularly attractive in rural areas, smaller towns, and suburbs. Sprint Broadband Direct and WorldCom are examples of fixed wireless providers serving a limited number of customers in certain select areas in California. Satellite technology is also an option for rural areas but the costs are substantial.

## C. Advanced Services Technologies and Deployment

[77] FCC, "Seventh Annual Report on Competition in Video Markets," January 8, 2001.

The following section discussed various types of advanced services technologies and deployment levels. In 2000, an estimated 73 percent of California's population lived in cities with broadband access, and an estimated 27 percent lived in cities without access to any form of broadband.[78]

### *i. Cable Modem*

***Technology*** – cable modem is a device that enables a user to connect a personal computer to a local cable television line and receive data at a speed of up to 1.5 Mbps and above depending on the cable provider. This speed is roughly equivalent to the data rate available to some DSL subscribers depending on a users network characteristics. Cable modem Internet access is shared with other users in the same neighborhood, which reduces the speed as the number of users increases.[79] Cable modem service is offered on the same basic infrastructure as multi-channel video service but it requires equipment upgrades to support broadband connections. The local cable company is responsible for installing cable modems and managing service quality. In order to offer cable modem service, companies must upgrade their networks by installing fiber-optic lines and two-way data transmission capabilities. The technology now exists to allow cable operators to effectively provide multiple advanced residential broadband applications, and cable operators are beginning to upgrade their networks in order to offer multiple services, including digital video, high-speed modem data services, and cable telephony, to customers.[80] Aside from adding the value of one stop shopping for consumers, offering multiple services can lower an operator's marginal risk.

***Deployment*** – California cable modem usage increased from 1.6 million cable modems in use at the end of 1999 to over 3.6 million by the end of 2000.[81] Nationally, cable providers make high-speed Internet service available to more than 60 million households.[82] While more customers subscribe to cable modem service than to any other broadband Internet service in the U.S., cable modem service is significantly less prevalent in California.[83] Leading cable television companies in California include AT&T (which merged with Comcast in December 2001), Adelphia, Time Warner, and Cox Communications.

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[78] Refers to DSL and cable modem broadband platforms only.
[79] Harry Newton's Telecom Dictionary, 1998 edition, page 118-119.
[80] FCC, Seventh Annual Report on Competition in Video Markets, January 8, 2001.
[81] California Cable Television Association (CCTA), http://www.calcable.org/competition.html.
[82] National Cable Association.
[83] The more limited availability of cable modem service in California is discussed later in this chapter.

In California, the deployment of cable modem service has been limited. California was a pioneer builder of the cable television system and the State has older cable lines, which require expensive upgrades in order to deliver high speed Internet access. Given today's tight financial markets, carriers face challenges financing the needed cable upgrades, especially when considering the debt load many cable companies are carrying from past acquisitions. It has been estimated that more than $52 billion will be required to carry out needed upgrades for the delivery of cable modem broadband services throughout the United States.[84]

The cable industry is the only broadband platform in which providers developed affiliated Internet Service Providers (ISPs) in concert with the cable modem service.[85] Cable companies serving 80 percent of all North American households signed exclusive agreements with @Home, the largest cable ISP, or Road Runner. @Home, however, went into bankruptcy in February 2002, leaving cable companies scrambling to find new ways of delivering services to their customers.[86] This vulnerable link in the cable modem business model, and the general role of ISPs, warrants further study to determine how to expand broadband choices for more Californians.

### *ii. Digital Subscriber Line (DSL)*

***Technology*** – DSL delivers data at high speeds over ordinary copper telephone lines. DSL can carry both voice and data signals. There are many different types of DSL, (e.g. integrated services digital network DSL, high-data-rate DSL, very-high-data-rate DSL, rate-adaptive ADSL, and symmetrical DSL), but most widely deployed is asynchronous DSL (ADSL). ADSL is most widely marketed to the residential customer. DSL is distance-restricted, capable of providing services to customers up to 18,000 feet away. The customer may be able to receive data at rates up to 6.1 Mbps, enabling continuous transmission of video, audio, and 3-D effects. More typically, individual connection speeds range from 512 Kpbs to 1.5 Mbps downstream (incoming) and 128 Kpbs upstream (outgoing). DSL technologies use sophisticated modulation schemes to pack data onto copper wires and are sometimes referred to as "last mile technologies" because they are used only for connections from a telephone switching station to a home or office.

Carriers provide DSL service over both existing phone lines (shared line connections) and additional or second dedicated lines (stand alone connections). Incumbents provide ADSL service over existing

[84] 2001 NetAction report. From this URL link. (http://www.netaction.org/alt-tech/index.html).
[85] ISPs provide Internet access to consumers and businesses, acting as a bridge between end-users and infrastructure owners.
[86] cable-modem.net, January 8, 2002.

copper wires and competitors need to use an incumbent's copper loops if they wish to offer their customers the option of ordering ADSL without the cost of a new line. Prior to the FCC's Line Sharing Order (FCC 99-355), competitors were required to lease second lines to each customer thus increasing their costs. But since that FCC order, the costs to the incumbents' affiliate are now closer to the costs to the competitor to provide the same DSL service. These shared line connections, referred to as "line sharing" in the industry, make it possible to talk on the phone and surf the Internet at the same time. Line sharing is made possible by a special splitter that isolates conventional phone devices from digital signals. Competitors can lease access to the customer's existing telephone line in order to offer those customers ADSL and the same efficiencies as ILECs can.

***Deployment*** – DSL installations began in selected communities in the U.S. in 1998 and are expected to continue at an increased pace through the next decade.[87] However, since DSL is ramping up in many communities and is distance restricted, it is not an option for many customers too far from the central office or in areas with lower population density. This situation should nevertheless change over time as the industry pursues solutions to overcoming customer DSL access problems, such as the problem of customer proximity to telephone company central offices. In October 1999, for example, SBC (Pacific's parent company) announced it would be embarking on a $6 billion project – designated Project Pronto – that would extend DSL to 77 million SBC customers in the U.S.over three years.[88] In October 2001, SBC announced that it was reducing its capital spending by 20 percent and, as a result, scaling back its original Project Pronto deployment schedule. Pacific's Pronto service basically shortens the copper wire distance to the customer by including fiber facilities into the network, thus allowing a greater portion of customers that were too far away to now get DSL. Project pronto service can be provided to customers using existing telephone line or as a second line. The deployment of DSL in California, which significantly outpaces cable modem, is discussed more fully later in this chapter.[89]

The DSL business requires significant investment and a stable expanding customer base. Because of the need to raise capital to build network infrastructure, some independent DSL providers, such as NorthPoint Communications Inc. and Rhythms NetConnections Inc., were hit by the economic downturn and are now out of business. Other companies are pulling back from major geographic expansion projects and focusing instead on growth through existing infrastructure.

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[87] IT Encyclopedia, whatis.techtarget.com, "DSL", April 3, 2002.
[88] SBC's Project Pronto involves mitigating the "distance problem" by constructing remote vaults (sites nearer to outlying customers) connected to the Central Offices by fiber optical cable. These vaults will contain the digital signal splitters needed for providing DSL service.
[89] DSL access as compared to cable modem is discussed later in this chapter in section B(i).

### *iii. Wireless Broadband*

***Technology*** – Wireless carriers may provide broadband service based on "fixed wireless" or satellite technology. Fixed wireless service requires a device called a "transceiver" to be mounted on a customer's home. The transceiver is pointed towards a radio transmission tower that sends and receives signals, and in turn sends a signal to the customer's modem and computer. The radio transmission tower can send and receive high-speed Internet data, voice, and video to customers that are almost 35 miles away. Fixed wireless service requires a clear line-of-sight so that signals can travel directly between the transmitter and the customer location.

Wireless broadband can also be provided by satellites. With satellite broadband, a small dish, generally between 24 and 36 inches, is placed on or near the home to receive signals from an Earth-orbiting satellite. Standard coaxial cable link the dish to a satellite modem, which is connected to the PC. Both fixed wireless and satellite can offer services to rural areas where DSL and cable modem is not available. While it is not yet viable in dense urban areas with tall buildings, satellite broadband can be beamed simultaneously to thousands of locations and received by any home with a clear view of the sky.[90] On the down side, the time it takes for satellite to beam and relay data make it less than ideal for interactive Internet content such as gaming.

***Deployment*** – Wireless broadband deployment in California, which is significantly less prevalent than DSL and cable modem, was not an advanced service focus of this report. However, the level of deployment and competition relative to DSL and cable modem is a topic for further study. While satellite broadband service is offered by several providers around the world, led by major players like DirectPC and until recently StarBand, it is not yet widely available in California.[91] Because fixed wireless technology can offer services to large geographic areas without the cost of new infrastructure (the primary investment is the tower and transceiver), it is particularly attractive in rural areas, smaller towns, and suburbs. The line-of-sight requirement, which can only be achieved in specific building types and locations, is one of the most substantial constraints to broader deployment of fixed wireless. Similarly, satellite-based wireless broadband customers will be in rural and other locations where cable and DSL don't reach. Unlike fixed wireless, the costs of establishing a satellite modem system may be the greatest constraint to broader deployment and will be likely to limit market entrance by new service

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[90] "Satellite Broadband Findings Its Market," by Lour Hirsh February 8, 2002 (http://www.newsfactor.com).
[91] StarBand recently filed for federal bankruptcy court protection, Wall Street Journal, June 3, 2002.

providers in near term. In addition, the rates charged to consumers (about $70 per month) are generally higher than prices for DSL and cable modem services and the installation charges (between $200 and $400) are higher than those for DSL and cable modem.[92]

### *iv. Technical Summary*

Table 4.7 illustrates the relative speeds and level of broadband deployment in California for existing DSL, cable modem, and wireless technologies.

**Table 4.7**
**Advanced Services Overview**

| Type | Typical Speeds | Deployment in California |
|---|---|---|
| Digital Subscriber Line (DSL) * | Download speeds of 384Kpbs-6.1 Mbps<br>Upload speeds of up to 1.5 Mbps | Greatest deployment in terms of access and current subscribers, limited rural availability. |
| Cable Modem ** | Download speeds of 1-2 mbps<br>Upload speed of up to 128-384 kbps | More limited deployment, limited rural and business customer availability. |
| Wireless Broadband: Fixed Wireless | Download speeds of 512-1.5 Mpbs<br>Upload speeds of up to 256 Kpbs | Limited deployment and data. |
| Wireless Broadband: Satellite | Downloand speeds of 400-500 Kpbs<br>Upload speeds of up to 128 Kpbs | Limited deployment and data. |

* Speeds vary based on a customer's distance from the service provider's central office. Tiered service plans are offered, making it possible for customers to pay for faster service.

** Speeds vary based on the number of people using the network at the same time.

## D. Analysis of Broadband Competition: DSL vs. Cable

This section addresses competition between broadband technologies, namely cable versus DSL. Only about half (49%) of Californian's living in cities with broadband access have a choice between DSL and cable modem. Moreover, following the demise of many DSL providers, these California consumers are basically confronted with an ILEC affiliated company as their only option. And when seeking cable modem service, the same is typically true – there is one large cable company from which to obtain service. As a result of this lack of competition, consumers that live in areas where both DSL and cable modem service is available (which is almost half of the cities in California with broadband access) end up choosing between DSL or cable modem access rather than among DSL or cable competitors.

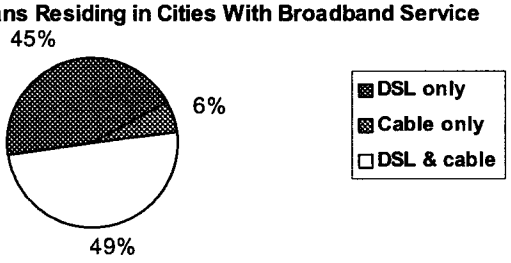
[92] "Satellite Broadband Findings Its Market," by Lour Hirsh February 8, 2002 (http://www.newsfactor.com).

### *i. California Distinct From National Trend*

***DSL Is More Prevalent Than Cable in California*** – The FCC reports that California was the only state to report higher DSL (57 percent) than cable modem (43 percent) subscribership as of December 2000.[93] Nationally, the FCC reported significantly more cable modem than DSL subscribership, with a total of 2 million DSL lines as compared to 3.6 million cable modem connections as of June 2000.[94]

The CPUC looked at how California communities compare in their broadband choices. Not surprisingly, the regions in and around major metropolitan areas have much greater access to broadband services. In 2000, approximately 11 million Californians lived in cities where DSL was the sole broadband option in a total of 210 communities. In comparison, only about 1.5 million people in 68 communities lived in cities where the sole access to broadband services was via cable modems. 12.2 million Californians live in 83 communities where they could choose between DSL and cable modem broadband service. An estimated 73 percent of the State's population lived in cities with broadband access, and an estimated 27 percent lived in cities without access to any form of broadband in the year 2000.[95]

**Figure 4.8**
**California Broadband Market By Platform:**
**Californians Residing in Cities With Broadband Service**




**Source: CPUC data**

As illustrated in Figure 4.8, less than half (49 percent) of Californians residing in cities with broadband service can choose between DSL and cable modem forms of access. For most Californians seeking broadband, the choice is limited to either DSL (45 percent) or cable modem (6 percent).

[93] FCC 02-33, Third Report, Table 7 (High Speed Lines by Technology), subscribership as of June 30, 2001.
[94] Federal Communications Commission, FCC Releases Data on High-Speed Services for Internet Access, August 9, 2001.
[95] Refers to DSL and cable modem service only, wireless broadband access in California was not studied in this report.

For those communities that offer broadband services, 55 percent of Californians live in cities that provide cable modem access, whereas 94 percent of Californians live in cities that offer DSL. The limited availability of cable modem broadband service is attributed to several major California cities (population greater than 200,000) that do not offer cable modem access to most of their residents, including the following:

| | |
|---|---|
| *San Jose* | *894,943 population* |
| *San Francisco* | *776,773 population* |
| *Long Beach* | *461,522 population* |
| *Oakland* | *399,484 population* |
| *Stockton* | *243,771 population* |

Moreover, there are 16 communities with populations between 100,000 and 200,000 that do not have cable modem access. With limited cable modem deployment in California, broadband competition between DSL and cable is restricted to select areas. Appendix I includes a detailed breakdown of DSL and cable modem broadband availability by community.

### *ii. Growth Expected for Cable and DSL*

Overall, U.S. residential broadband subscribership has seen slowing growth, with an exodus of activity in the DSL market. Nationally, there was a decline in DSL growth, from as high as 50 percent growth in 2000 declining to 20 percent growth in the first quarter of 2001 and further dropping to 14 percent in the second quarter of 2001.[96] Companies, including SBC Communications, AT&T Wireless, and Excite@Home, decided to halt or curtail major broadband initiatives.[97]

Nevertheless, growth in residential DSL and cable modem subscribership is forecasted to continue in 2002. The Wall Street Journal has reported a 52 percent projected growth in market share for DSL as compared to 37 percent for cable modem service.

[96] Wall Street Journal, Bells Make a High-Speed Retreat from Broadband, by Dennis K. Berman and Shawn Young, pages B1 and B9, October 24, 2001.
[97] Ibid.

| Table 4.9<br>U.S. Residential Broadband Subscribership Projections<br>(In Millions) | | | |
|---|---|---|---|
| | Subscribership | | |
| **Broadband Type** | ***Year End 2001*** | ***Year End 2002*** | ***Projected Growth*** |
| ***DSL*** | 3.3 | 5.0 | 1.7 (52% increase) |
| ***Cable Modem*** | 7.0 | 9.6 | 2.6 (37% increase) |

Source: Wall Street Journal, Bells Make a High-Speed Retreat from Broadband, Berman and Young, October 24, 2001.

## E. DSL Competition Analysis

This section examines competition within the DSL market, including: market share held by large ILECs; competitor access to the shared line DSL market segment; and differences in DSL line sharing activities among medium and large ILECs.

### *i. ILECs Dominate DSL Markets*

As previously noted, DSL may be provided to two core market segments: stand alone and shared line customers. The equal ability to provide shared line service (DSL line sharing) is key to establishing and maintaining competition in the DSL market. Analogous to UNEs (unbundled network elements) for wireline telephone service, which enable competitors to lease parts of the network from ILECs, line sharing allows competitors to provide high-speed data service without the substantial cost of building their own infrastructure. Staff's analysis indicates that ILECs continue to have a substantial competitive advantage in the shared line DSL market and consumers are limited to a few dominant service providers. Overall, ILECs control approximately 90 percent of the DSL market in California.[98]

### *ii. ILECs Continue to Dominate DSL Line Sharing Market, Despite Access Requirements*

DSL line sharing, as previously noted, allows a customer to use his or her existing phone line for both normal phone service provided by the local telephone company and for high-speed DSL internet access through the same or another provider. The idea behind DSL line sharing in respect to local

[98] Based on CPUC data collected from Pacific Bell and estimated by staff for Verizon. The CPUC estimates that Verizon, Pacific Bell, and their affiliates combined control roughly 10 percent of the relatively small stand alone market and roughly 95 percent of the much larger shared line DSL market in California.

competition is that the playing field will be leveled by giving competitive DSL providers access to shared-line interconnections.

The FCC, in fact, designated the high frequency portion of the local loop that delivers DSL information to be a UNE, and began requiring ILECs to line share this portion of the loop with CLECs in December 1999.[99] The FCC further asked the states to set rates, terms and conditions for access to this new UNE, and the CPUC has since been working toward performing these tasks for California. A final CPUC decision on the price for this UNE should be issued by mid to late summer 2002. The CPUC will then focus on non-cost related issues surrounding line sharing (e.g. – what specific unbundling obligations for line sharing ILECs are to provide CLECs in California) once this final price is decided.

The CPUC evaluated line-sharing orders received by Pacific Bell from nine competitors that comprised the California DSL market between June 2000 and April 2001. These firms include Pacific's advanced services affiliate ASI (SBC Advanced Solutions) which was spun off from Pacific in 2000, as well as the following companies: Covad Communications Company, DSL.net, MGC Communications, New Edge Networks, Pointe Local, Rhythms NetConnections, and TCI Telephony.[100] As indicated in Table 4.10, below, ASI controlled approximately 96 percent of the DSL shared line market between June 2000 and April 2001.[101]

**Table 4.10**
**DSL Shared Line Market in California[102]**
**June 2000-April 2001[103]**

| | Competitors | ILEC Affiliate * |
|---|---|---|
| **Market Share** | 4.2% | 95.8% |

* Pacific Bell's affiliated DSL provider, ASI.

As of May 2002, only one wholesale competitor, Covad, remains in business and no new wholesale competitors have entered the California DSL market. Hence, ASI's market share today is likely higher.

Staff also evaluated California's DSL line sharing market based on customer segments served by ILECs.[104] As indicated in Table 4.11, the State's four largest ILECs filled DSL line sharing orders for three audiences: (1) affiliated DSL service providers; (2) non-affiliated competitors; and (3) directly for

[99] Third Report and Order in CC Docket No. 98-147, and Fourth Report and Order in CC Docket No. 96-98.
[100] Covad is partly owned by SBC, Pacific's parent company.
[101] Source: Pacific Bell, Line Sharing Order Volumes for June 2000 through April 2001, Reported to the CPUC.
[102] Line sharing was not available to carriers until June of 2000 per FCC order. Line-share is used by service providers to provide DSL services to customers on the same pair of cooper loop on which customers also receive voice services.
[103] DSL Line Sharing Order Volumes, data from Pacific Bell for June 2000-April 2001.

other customers. In this case, staff evaluated the proportion of DSL line sharing orders filled by each ILEC through affiliates versus other channels.

**Table 4.11**
**DSL Line Sharing Market Activity in California**

| DSL Line Sharing Order Market Segments | Percent Filled by ILEC Per Market Segment | | | |
|---|---|---|---|---|
| | Pacific | Verizon | Citizens[105] | Roseville |
| Jan 2000-Dec 2000 | | | | |
| Filled for ILEC Affiliates[106] | 99% | - | - | - |
| Filled for Non-Affiliated Competitors | 1% | 2% | - | - |
| Filled Directly for Customers | - | 98% | - | 100% |
| | 100% | 100% | - | 100% |
| Jan 2001-June 2001 | | | | |
| Filled for ILEC Affiliates | 96% | 45%[107] | - | - |
| Filled for Non-Affiliated Competitors | 4% | 2% | - | - |
| Filled Directly for Customers | - | 55% | - | 100% |
| | 100% | 100% | - | 100% |

Source: CPUC Data Request responses.

As indicated in Table 4.11, Pacific filled 99 percent of its DSL line sharing orders for its DSL affiliate, ASI, in 2000. This proportion decreased to 96 percent in the first six months of 2001 as Pacific started filling more orders for competitors.

In 2000, Verizon filled 98 percent of its DSL line sharing orders directly for customers but in 2001 filled 45 percent of its orders for an affiliate. Verizon consistently filled 2 percent of line sharing orders for competitors in 2000 and in 2001.

Citizens and Roseville do not have DSL affiliates and did not fill DSL line sharing orders for competitors during the reporting period. There was no DSL line sharing activity occurring in Citizen's service area through June 2001, which is largely rural, but modest activity is taking place in Roseville's service area.[108]

[104] CPUC Data Request, 2000 and Jan-June 2001.
[105] Citizens only offers stand alone DSL service in its service territory.
[106] Pacific and Verizon provide DSL service through affiliates, ASI and Verizon Advanced Data Inc. (VADI) respectively.
[107] Verizon's shift from filling DSL orders directly (98 percent in 2000) to filling orders through an affiliate (in 2001, 45 percent through affiliate while 55 percent were still filled directly) is due to the launch of Verizon's separate data affiliate, VADI, in May 2001. Orders from January through May 6, 2001 were filled directly, whereas, after May 6 orders were filled through VADI. DSL orders are currently filled through VADI.
[108] Citizens filled stand-alone DSL orders through a dedicated loop directly for its customers. Stand-alone DSL orders were not included in this analysis due to insufficient data.

# Chapter 5. Trends to Watch

## I. Chapter Overview

This chapter provides an overview of some of the many issues impacting the competitive landscape for telecommunications services in California. This chapter begins with a look at market entry and exit, providing information on the competitors in California's telecommunications marketplace. In addition, the chapter discusses concerns with the current state of the telecommunications marketplace, including consumer information and service quality issues. Finally, the chapter provides information about various actions that the CPUC is undertaking to foster competition in the state and provide consumers with a broad choice of service providers.

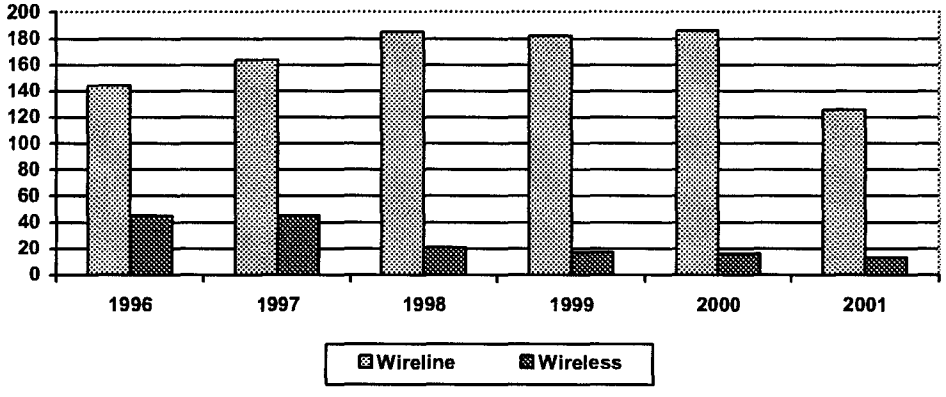
## II. Market Entry and Activity

### A. Wireline License Applications Stable While Wireless in Decline

In gauging the state of competition in the telecommunications industry, staff examined how many new firms are entering and exiting the market each year.[109] To gain a general picture of the potential (not actual) number of new carriers in a given year, staff considered the number of licenses granted to authorize service. In order to become a new telecommunications service provider in California, CLECs, IXCs and wireless[110] carriers are required to obtain authorization from the CPUC. This authorization is called a Certificate of Public Convenience and Necessity (CPCN). Figure 5.1 shows that the total number of new wireline CPCNs rose until 1998, then reached a plateau, and remained stable at about 185 new licenses each year through 2000. 2001 has seen a severe decline in new CPCNs, perhaps due to the economic downturn that has affected the telecommunications industry nationwide. In the wireless market, the number of newly licensed carriers has been continually decreasing. It should be noted that the number of CPCNs overstates the number of actual entrants into the market. While wireline and wireless carriers are required to apply or register with the CPUC for authorization in order to begin providing any kind of service, many carriers choose not to initiate such service.

[109] See Section III below for a discussion of market exit.
[110] Decision 96-12-071: Entry into the market by wireless carriers is not under the direct jurisdiction of the CPUC, and while they must register for authorization to provide service, such carriers are not subject to any sort of approval process.

**Figure 5.1**
**Applications to Become New Wireline & Wireless Carriers in California**




Source: Wireline and Wireless data derived from CPUC records of new carrier CPCNs and wireless registrations.
* Wireline applications consist of CLECs/IXCs, as no new ILECs have entered California in this time period.

The total number of carriers who have received authorizations to serve in the state has more than doubled since 1997, as detailed in Figure 5.2 below. Again, it should be noted that the authorization to provide service does not equate to the actual provision of service. By 2001 there were over 1,800 licensed carriers in California; however, far fewer are actually in operation. It is relatively easy and inexpensive for a qualified carrier, particularly one that is not building new facilities, to obtain authorization to provide telephone service. It is far more complex and expensive to actually provide telephone service, which, at a minimum, involves marketing, selling, and billing for services rendered.

**Table 5.2:**
**Licensed Telecommunications Carriers in California, 1996-2001*+**

| | 1997 | 1998 | 1999 | 2000 | 2001+ |
|---|---|---|---|---|---|
| *ILECs* | 26 | 22 | 22 | 22 | 22 |
| *CLECs* [111] | 104 | 209 | 256 | 303 | 350 |
| *IXCs* [112] | 504 | 857 | 938 | 1018 | 1098 |
| *Wireless Carriers*[113] | 192 | 246 | 241 | 270 | 362 |
| ***Total*** | **826** | **1,334** | **1,457** | **1,613** | **1,832** |

Source: Data taken from CPUC oracle database (UCS) on utility companies

* Total figures in Table 5.2 likely include significant double-counting, as many carriers (or their affiliates) are registered in 2 or more of the carrier groups, i.e. ILECs, CLECs, IXCs, and/or Wireless

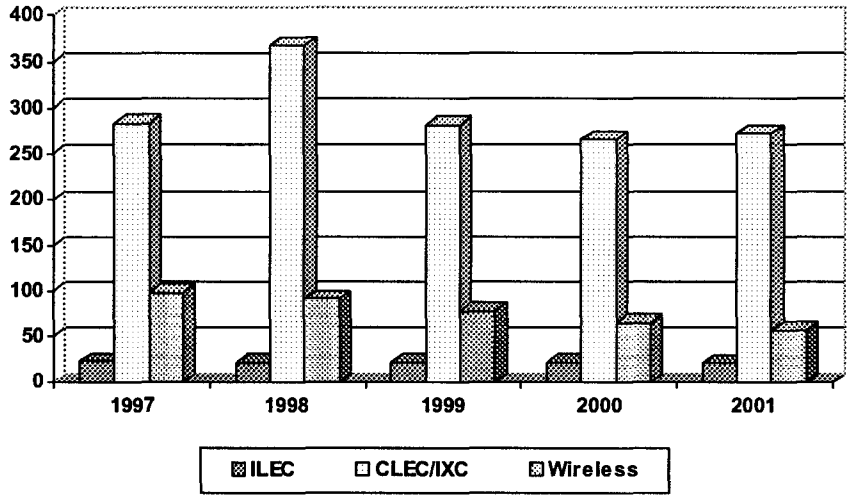
+ Includes data through September 2001 only

[111] Includes both facilities-based CLECs and CLEC resellers
[112] Includes both facilities-based long distance carriers and long distance resellers. Also, there may be some overlap between the number of long distance carriers and CLECs since some carriers provide both local and long distance services.

## B. Number of Carriers Remitting Surcharges

A better measure of the number of carriers actually participating in California's telecommunications markets is to examine data regarding surcharges that carriers are obligated to remit to the CPUC for public programs (such as lifeline service) each year. Because all carriers earning intrastate revenues are required to collect and remit surcharges, the number of carriers remitting surcharges provides an indication of the number of carriers actually serving customers. By this measure, as shown in the graph below, in 2001, there were 350 total carriers operating in California (21 ILECs, 272 CLECs/IXCs[114], and 57 wireless carriers).

**Figure 5.3**
**Carriers in Operation Remitting Surcharges in California**




As shown in Figure 5.3, the number of ILECs remitting surcharges has remained fairly constant from 1997 to 2001, although, through mergers, their number has slightly decreased from 23 to 21 carriers. While the number of CLECs/IXCs grew initially after the local market was first opened in 1996, over the five-year period, the number of CLECs/IXCs has fallen slightly (283 in 1997 to 272 in 2001). In contrast, the number of wireless carriers remitting surcharges has decreased more significantly each year, from 98 in 1997 to only 57 in 2001, especially due to the decline in wireless resellers in California. While the number of wireless carriers in operation has declined, wireless retail revenues (as noted in

[113] Includes wireless carriers who provide the following services: cellular, cellular resale, paging, personal communications services (PCS), radio telephone utilities, facilities-based commercial mobile radio services (CMRS), and resale CMRS services.
[114] For this measure, it was not possible to segregate CLECs and IXCs.

Chapter 4) have increased. Those divergent trends are consistent with information presented in Chapter 4, that fewer carriers are collecting ever-increasing revenues, and thus an established core group of wireless providers prevails while weaker providers exit the market.

## C. CLECs Depend More on Facilities-Based and UNE Modes of Entry and Less on Resale

Data demonstrates that CLECs in California depend more on facilities-based and UNE modes of entry into the state's telecommunications marketplace and less on resale. As noted in Chapter 2, a CLEC may enter a local telecommunications market in several ways or a combination of them, i.e.: a) develop their own facilities that connect customer premises to the telecommunications network, b) resell the telecommunications services of another carrier, or, c) lease discrete parts of the existing network called UNEs.

As illustrated below, CLECs in California have a higher preference for using the facilities-based mode of entry as compared with the nationwide trend for local markets. CLECs in California provided about 45 percent of their local telephone lines over their own facilities at the end of 2000 (see Table 5.4). By contrast, CLECs nationwide provided about 35 percent of their local telephone lines over their own facilities at the end of 2000.

**Table 5.4**
**CLEC Local Telephone Lines in the U.S. and in California by Mode of Entry 1999-2000 (in Thousands)[115]**

| Date | # of CLEC's Reporting | Total Local telephone lines | CLEC Owned Lines[116] | % of Lines Owned | Acquired Lines[117] | % of Lines Acquired |
|---|---|---|---|---|---|---|
| **California** | | | | | | |
| December 2000 | 24 | 1,493 | 672 | 45.0% | 821 | 55.0% |
| December 1999 | 24 | 840 | 343 | 40.8% | 497 | 59.2% |
| | | | | | | |
| **Nationwide** | | | | | | |
| December 2000 | 87 | 16,397 | 5,748 | 35.1% | 10,649 | 64.9% |
| December 1999 | 81 | 8,318 | 2,847 | 34.2% | 5,471 | 65.8% |
| | | | | | | |

[115] Source: *Local Telephone Competition Status As of December 31, 2000,* Table 3 as well as data gathered from responses to FCC Form 477 for the periods ending December 31, 1999 and December 31, 2000 for carriers operating in California.

ILEC data also provides some clues about CLEC mode of entry since CLECs have the option of leasing lines for resale and leasing UNE loops from ILECs. (see Table 5.5 below). Looking at the modes of entry individually, the data indicates that the number of UNE loops that ILECs leased to other carriers in California more than doubled between December 1999 and December 2000 (from 181 to 435). By contrast, the growth in lines resold to other carriers in California is much lower (about 4 percent) for the same period. Hence, at this early stage, CLECs appear to rely more on leasing UNE loops as a mode of entry than on resale.

**Table 5.5**
**FCC Data on Total ILEC Facilities in California By Function**
**1999 – 2000[118] (In Thousands)**

| | | | | *Lines Provided to Other Carriers* | | |
|---|---|---|---|---|---|---|
| ***Date*** | ***# of ILECs Reporting*** | ***Total Facilities*** | ***Local telephone lines*** | ***Lines Resold*** | ***UNE Loops Leased*** | ***Total*** |
| December 1999 | 8 | 23,754 | 23,168 | 405 | 181 | 586 |
| December 2000 | 8 | 24,323 | 23,467 | 421 | 435 | 856 |
| % Change 1999-2000 | ---- | ------ | ------- | 4.0% | 140.3% | 46.1% |

Additional data gathered by the CPUC suggests that the number of resale lines in the state peaked in 2000 and is declining[119]. According to that data, the lines ILECs resold to other carriers experienced a vast increase between 1996 and 2000, from about 17,000 to about 413,000 lines (see Appendix F). By June 30, 2001, the ILECs reported that the number of lines they resold to other carriers fell to about 280,000. This drop in resold lines is likely related to the trend in CLEC closures and service reductions, discussed later in this Chapter.

[116] Lines provided over CLEC-owned "last mile" facilities
[117] Lines acquired from other carriers as UNE loops or under resale arrangements.
[118] Source: *Local Telephone Competition Status As of December 31, 2000*, Table 4 and FCC Form 477 data for the periods ending December 31, 1999 and December 31, 2000 for California carriers.
[119] ILECs reported the number of resale lines they provided to other carriers and CLECs reported the number of resale lines they leased from other carriers. Generally, the CLEC data shows a similar downward trend in resale lines as the ILEC data. The differences between the ILEC and CLEC data is likely sampling error since only 9 of the ILECs and CLECs in California were asked to provide data to the CPUC for this report.

## D. Pacific Bell's Long Distance Market Entry Under Review By CPUC

The CPUC is currently reviewing Pacific Bell's application to enter California's long distance market and is determining whether or not to endorse that application before the FCC. Section 271 of TA '96 allows RBOCs, such as Pacific, to enter the long distance market only after they each prove that they have opened their respective local markets to competition. Section 271 details a 14-point checklist that Pacific must meet in order to prove that it has irreversibly opened its local market to competition from CLECs. Although the FCC is the final arbiter regarding long distance entry, TA '96 gives state commissions a role in determining whether the RBOCs' local markets are open to competition. The FCC places great reliance on each state's assessment.

In addition to the checklist items, the CPUC has been reviewing three other important and complex aspects of Pacific's service to competitors in order to assess the extent to which the local market is open to competition. Specifically, they are: (1) CLECs' non-discriminatory access to Pacific's Operations Support Systems (OSS)[120], (2) the process and procedure for resolving on-going operational issues between Pacific and the CLECs, and (3) the establishment of a Performance Incentive Plan to help assure Pacific will continue to provide the same level of services to its CLEC customers in the local market as it does for itself should it receive Section 271 approval. Since CLECs depend on Pacific's network to provide service to their customers in California, many CLECs contend that resolution of these issues is crucial to having a "level playing field" for providing a true alternative to Pacific.

The process for evaluating Pacific's application has been complex and labor intensive. Staff's initial review of the application determined that Pacific had satisfied only four of the 14 checklist items outlined in Section 271. Over the intervening review period, the CPUC has provided numerous staff reports, guidelines and requirements, as well as Commissioner and Administrative Law Judge rulings, concerning Pacific's compliance with the Section 271 checklist and FCC orders. The CPUC has held weeks of collaborative workshops and several multiple-day hearings, involving Pacific and many CLECs and other interested parties, and has collected thousands of pages of formal filings, affidavits, monthly status reports, and data responses from parties. In early March 2002, the CPUC completed its

[120] The OSS is a system of computer servers, software and personnel that Pacific and other RBOCs rely upon to receive process and provision service orders from their retail customers. OSS also provides billing, maintenance and repair capabilities for both Pacific and CLECs, who depend on Pacific's systems to serve their customers. TA '96 requires Pacific to give CLECs non-discriminatory access to its OSS, since CLECs will be subject to a competitive disadvantage if they receive services from Pacific that are inferior to those that it generates on its own behalf. Regardless of how well a CLEC is performing internally, the service it can provide its customers will be only as good as the OSS service it receives from Pacific.

Performance Incentive Plan review for Pacific, adopting a plan that should assure future on par service for CLEC competitors if Pacific is given Section 271 approval. The plan identifies how payments by Pacific will be tied to sub-par performance results, how any payments made will be increased if performance worsens, and how they will be shared between competitors and ratepayers.

The CPUC expects to resolve remaining Section 271 issues and forward its formal recommendations on Pacific's application to the FCC in 2002. If and when the FCC subsequently authorizes Pacific's entry into the state's long distance market, CPUC staff will be monitoring the effects of that event on our local and local toll markets.

## III. Market Consolidation and Exit

### A. Trend Toward Cross-Sector Consolidation

#### *i. Merger Activity in Telecommunications*

Telecommunications markets are in flux, as carriers not only continue to enter, but also join together or even go bankrupt and leave the marketplace. This sort of market consolidation (e.g. mergers and closures) can have a detrimental effect on competition. Simply put, fewer carriers equate to less choice. Closures and service withdrawals directly reduce the number of carriers consumers can chose from. In addition, as carriers merge and expand their size and control, the overall number of players in the industry is shrinking, and the remaining dominant carriers may find it easier to reassert market power.

From 1996 to 2000, 14 mergers and acquisitions occurred in the California wireline market.[121] Of these, most have occurred among IXCs, with 4 acquisitions and 6 mergers. Each of the IXC carriers merged with another California IXC, thereby decreasing the overall number of players in the long distance market. In the local market, there was only one merger among CLECs (Campuslink Communications merged into Patec Communications), yet three acquisitions among ILECs (Citizens acquired two smaller California ILECs, and Verizon acquired one[122]), meaning that some incumbents have consolidated and joined forces. Unlike the national trend whereby mergers and acquisitions are providing carriers with new services (e.g. cable or DSL), the consolidation in California is mainly among like carriers, enlarging companies' customer bases, but not their capabilities.

[121] Data taken from CPUC oracle database (UCS) on archived utility companies
[122] Citizens acquired CP National Corporation and Tuolumne Telephone Company, while Verizon acquired Contel Service Corporation

Prior to 2000, mergers and acquisitions had been uncommon among most wireless carriers in California. However, since then, dominant national carriers have drawn together, and created new mega-carriers. In April 2000, Verizon Communications arose from the merger of Vodafone AirTouch with Bell Atlantic and GTE, and by combining their wireless services, they created the nation's largest wireless service provider. Also in 2000, SBC Communications (including Pacific Bell) and BellSouth entered into a joint venture, to combine their wireless networks under the new name of Cingular Wireless, becoming the second largest wireless network in the United States.

AT&T has also been striving to expand its wireless networks. AT&T acquired shares of Cellular One (their networks in the San Francisco Bay Area and San Diego) from Vodaphone AirTouch (which was forced to sell off its shares due to conditions in the Vodaphone's merger agreement with Bell Atlantic and GTE). AT&T's previous, yet unsuccessful merger attempts have included a coupling with British Telecom (the United Kingdom's dominant phone company), and business-oriented Nextel Communications.

Nationwide, the telecommunications market has experienced the same movement towards mergers and acquisitions. SBC merged with Pacific Telesis (which includes Pacific Bell) back in 1997, with Ameritech in 1999, and also formed a strategic alliance with Williams Communications (advanced fiber-based ATM backbone network) that same year. MCI joined forces with Worldcom in 1998. AT&T merged with TCI (cable) in 1999, MediaOne (cable) in 2000, and acquired NorthPoint Communications' (DSL) assets in 2001. In 2000, Bell Atlantic and GTE formed Verizon, Qwest merged with US West, and Covad (DSL) formed a strategic alliance with Pacific Bell.

### *ii. Failed Mergers And Consequences*

Not all merger attempts have been successful. The proposed merger between Ameritech and Qwest was blocked by the FCC, and the potential mergers between Sprint and Worldcom, and Verizon and NorthPoint Communications failed as well. While it had already invested $150 million in the DSL provider, Verizon withdrew from its proposed merger with NorthPoint due to the latter's declining financial standing. Without the financial help it would have received from the merger, NorthPoint began closing its network without warning, cutting off service to the Internet Service Providers (ISPs) it sold service to, thus leaving thousands of end-users without Internet access. In California alone,

40,000 business and consumer customers were affected, effectively stranded without broadband service[123].

In the Verizon-NorthPoint case, the lack of a merger hampered competition in that a carrier went out of business because it could not obtain the necessary capital in order to stay in operation. In addition, as NorthPoint fell, it took other carriers with it, because when the smaller ISPs lost their supply of DSL service, ISP customers switched back to more "reliable" ILEC sources of DSL service. Thus, the dominant firms benefited from NorthPoint's business failure.

## B. Economic Downturn Limiting Competition

CLECs, IXCs, and advanced service providers have all suffered with the economic downturn in 2000. Fledgling telecommunications carriers and dot.coms alike began to crumble as stock prices fell and as financing options disappeared. The cycle perpetuated itself, as more companies failed, financial markets continued to fall, and capital became even scarcer. This trend has continued into 2001 and 2002, as carriers spent millions to create and extend their networks, and were left with huge debts that many could not repay. The telecommunications sector has seen a wave of bankruptcies as a result, as well as attempts to shed unprofitable ventures, and service reductions.

Closures have been especially prevalent among broadband service providers, affecting carriers of cable Internet, fixed wireless (and satellite internet service), and DSL services. In the DSL market, NorthPoint, Zyan (of Los Angeles), Flashcom, Bazillion, Rhythms NetConnections, and Covad, (with 330,000 customers) all filed for bankruptcy in 2001. Covad reemerged from bankruptcy December 20, 2001, but such recovery has been rare. The cumulative impact of such closures has been extremely disruptive to consumers. For example, 83,000 Rhythms customers nationwide faced great inconvenience with the abrupt loss of service, and were left to find new broadband service providers. In addition, as noted previously, the collapse of Northpoint forced 40,000 California customers to scramble to find new DSL providers.

[123] Source: Mercury News "NorthPoint Ordered to Restore Services", March 30, 2001

| Table 5.6<br>Carriers Filing for Bankruptcy or Ceasing Operations | | |
|---|---|---|
| **2000** | **2001** | **2002** |
| Digital Broadband Communications | Broadband Office Communications | Adelphia |
| GST Telecommunications | Cable & Wireless USA | Advanced TelCom |
| ICG Communications | Convergent Communications Services | Long Distance Direct |
| Integrated Teleservices | Covad | Global Crossing |
| Prism Communications | Essential.com | McLeodUSA |
| Twister Communications Network | FirstWorld (Socal, Anaheim, Orange Coast) | Network Plus |
| | Inet Interactive Networksystem | Williams Communications |
| | Mpower Communications** | Winstar |
| | Net2000 Communications | XO Communications |
| | NorthPoint Communications | Yipes |
| | Onsite Access Local | |
| | OpTel Telecom | |
| | Rhythms Links | |
| | Sprint Communications Company* | |
| | Starlink Communications | |
| | Teligent Services | |

* Sprint Communications Company has received CPUC approval to withdraw from providing local exchange services.
** The carrier has withdrawn from specific areas, but has not completely withdrawn from all service areas.

The downturn among broadband carriers is continuing from 2001 into 2002. After announcing its plans to both divest itself of its Broadband (cable) division, as well as exit the fixed wireless market, AT&T sold its assets to Netro in January 2002. That same month, Global Crossings, lacking necessary funding, filed for Chapter 11 bankruptcy protection. The high-speed network provider suffered from huge debt, and a glut on the fiber optic market, which resulted in decreased demand and sinking stock prices. Another fiber provider, McLeodUSA shortly followed suit the same month, and Yipes, a broadband for business provider, filed in March 2002 under a huge debt load. Competitive local exchange carriers have been hit hard these last two years as well. Among the CLECs declaring bankruptcy in 2001 are Adelphia, Teligent and Winstar, with Mpower and Network Plus declaring in 2002. Regardless of the reason for closures, when the number of operating carriers is decreasing, the consumers' choice is decreased and the level of competition is diminished.

## C. Decline in Demand for Number Resources Corroborates Market Consolidation and Service Reductions

As described earlier, one key input to competing in the state's local telecommunications market is telephone number resources. When local telecommunications were provided in a monopoly environment, only the ILECs needed telephone numbers in order to serve their customers. However in today's marketplace, facilities-based CLECs also need telephone numbers to serve customers and compete with ILECs[124].

Recent data on CLEC requests for number resources corroborates the trend toward market consolidation and service reductions for these carriers. As CLEC offerings in California's marketplace shrink, it is expected that CLEC demand for number resources would correspondingly decline. Table 5.7 demonstrates that the quantity of CLECs applying for numbering resources declined since 2000. The quantity of CLECs that applied for number resources in California fell from 33 to 25, comparing the first quarters of 2000 and 2001. That represents about a 22% decline. By the first quarter of 2002, the quantity of CLECs remained at about the same reduced level as they had been in the first quarter of 2001. Examining the data for the entire year suggests continued reductions. While a total of 52 CLECs applied for number resources by the end of 2000, only 40 did so by the end of 2001. Given that only 27 CLECs applied for numbers by the end of April 2002, the yearly total for 2002 is expected to be even smaller than it was by the end of 2001.

**Table 5.7**
**Quantity of CLECs Applying for Number Resources in California: 2000 – 2002***

| | *First Quarter* | *Entire Year* |
|---|---|---|
| *2000* | 33 | 52 |
| *2001* | 25 | 40 |
| *2002* | 26 | 27* |

Source: Number Allocation Lottery and Number Pooling Data for California derived from databases of the CPUC and Neustar, January 2002-April 2002

* Data does not include an entire year for 2002. It includes data through April 2002 only.

[124] Certain wireless carriers also require telephone numbers to service to customers. Wireless carriers are discussed in detail in Chapter 4.

## IV. Consumer Issues With Competition

### A. Inadequate Information for Service Choices

While competition can promote lower prices, innovation, and improved service quality, competition also can present some challenges and hazards for consumers. For competition to have its intended benefits, customers need to understand their choices and to have sufficient access to information on which to base their choices. Customers who are confused by their options and unaware of their rights in a competitive marketplace are more vulnerable to improper behavior by carriers. Among the challenges that consumers face in competitive telecommunications markets are gathering information to make an informed choice of carrier, comparing rate plans with a variety of different terms, and understanding technical issues such as the difference between interLATA and intraLATA calling. As some service providers seek to secure multi-year service contracts, a lack of information can cause consumers to get trapped into long-term arrangements with one carrier.

However, the Commission is completing work on adopting a Telecommunications Consumer Bill of Rights, and a corresponding set of comprehensive consumer protection rules.[125] These rights and rules would address the following areas: disclosure, choice, privacy, public participation, oversight and enforcement, accurate bills and redress. Through these safeguards, consumers will be able to make better-informed choices and know how to protect themselves from improper behavior by carriers.

### B. Service Quality Complaints

Consumers are also concerned with service quality. After billing questions, service quality is the next most common topic of complaint by consumers for local (ILEC and CLEC) service providers. The CPUC continues to receive large numbers of complaints regarding ILEC service quality, ranging from 1,929 to 3,839 complaints a year between 1995 and 2000. Complaints regarding CLEC service quality have ranged from 113 to 1,141 complaints a year between 1998 and 2000[126]. The large number of consumer complaints runs counter to the general increase in the number of wireline entrants from 1996 to 2000 and the expectation that the introduction of new carriers would yield more intense competition and better service. In the case of CLECs in particular, increasing customer complaints may be the result of an increasing customer base.

[125] CPUC Rulemaking 00-02-004.
[126] There were no CLEC complaints in 1995 and 1996 and only one complaint in 1997.

Service quality has also been an issue in the long distance market. Consumers have encountered deceptive marketing practices, inaccurate billing, slamming[127] or cramming[128]. Our statistics show that since 1997, disputed bills have been the principal reason for complaints about long distance carriers, despite efforts by the CPUC and FCC to reduce slamming and cramming. In fact, the high incidence of slamming and cramming caused the Legislature – with the support of the CPUC and consumer groups – to make changes in the law in 1999 that implemented new consumer protections. These changes have enabled the CPUC to be more proactive in its efforts to stem the proliferation of cramming and slamming incidents in California. The CPUC's *Report to the Legislature on Slamming and Cramming* details the Commission's efforts, and explains that California has experienced a 40% reduction in the number of cramming complaints received by the CPUC between 1999 and 2000, and a further reduction of 36% between 2000 and 2001. Slamming complaints dropped by 13% between 1999 and 2000, but increased by 59% between 2000 and 2001.[129]

## C. Other CPUC Efforts on Behalf of Consumers

The CPUC has been working to foster competition and open markets for consumers. It is Commission policy to encourage consumer choice, and it has been asserted in Commission reports that efforts to promote competition will only be effective if consumers have access to information in order to make such choices.[130] Since consumers cannot make informed decisions when access to relevant information is lacking, the CPUC is taking action to improve carriers' disclosure practices. As recently as July 2001, the Commission has established Interim Rules[131] to protect consumers from unauthorized charges and to further consumers' access to information in the marketplace. These new rules include mandates for carriers to have subscribers "opt-in"[132] for noncommunications-related charges, to keep track and investigate customer complaints, and to format their billing statements in a non-misleading, clear manner. Phase 2 of the Commission's New Regulatory Framework (NRF) for Pacific Bell and Verizon (D.89-10-031) will attempt to assess how ILEC service quality has fared since its adoption. The ILECs will have to file reports with the CPUC, and customer surveys may be carried out to best judge service quality. The results from Phase 2 will aid the Commission in its consideration of whether

[127] "Slamming" is the illegal practice of changing a consumer's telephone service - local or long distance service - without permission. http://www.fcc.gov/slamming/
[128] "Cramming" is a term used to describe the practice of placing unauthorized, misleading, or deceptive charges on consumers' telephone bills. http://www.fcc.gov/Bureaus/Common_Carrier/Factsheets/cramming.html
[129] Some part of this increase is due to FCC rule changes that now permit complainants to file interstate slamming complaints with state regulatory commissions.
[130] Consumer Protections for a Competitive Telecommunications Industry: Telecommunications Division Staff Report and Recommendations. February 3, 2000
[131] CPUC Decision 01-07-030
[132] The "opt-in" method is a grant of a one-time authorization for specific services, which can be revoked by the subscriber at any time.

and how NRF should be revised to achieve the Commission's goal of high-quality service.[133] Moreover, two other CPUC decisions fortified protections for consumers and help ensure that they can make informed choices among telecommunications services. D. 01-07-026 requires carriers to post price information on the Internet and D.02-01-038 strengthened the rules regarding customer notice when utilities transfer customers, withdraw service or change prices.

## V. Statutes, Legislation, and Regulatory Action Affecting Competition

Section 316.5 of the California Public Utilities Code directs the CPUC to conduct a review of any statutes that might impede or discourage competition in or deregulation of the telecommunications marketplace. In addition, the CPUC is required to make recommendations to the Legislature on the statutes that should be amended, repealed, or enacted to enhance and reflect the competitive telecommunications environment, and/or promote the orderly deregulation of the telecommunications industry. The CPUC's review of current statutes and legislation in California did not uncover any that appear to impede or discourage telecommunications competition or deregulation. Correspondingly, the CPUC does not currently have any recommendations for the Legislature in this area.

Of note to the Legislature, however, are the various steps the CPUC is taking to enhance the development of competition and improve choices of telecommunications providers available to customers in California[134]. In addition to Pacific's 271 application for long distance market entry and its work on consumer oriented issues relating to competition, the CPUC is addressing several issues which affect California's telecommunications marketplace. These issues are:

a) Examination of UNE prices charged to ILEC Competitors
b) Review of the New Regulatory Framework for ILECs
c) Access and Choice for DSL Service
d) Number portability for wireless carriers

## A. UNE Prices That Promote Efficient Competition

As noted earlier, one way for CLECs to compete with ILECs in the local market is for them to lease discrete parts of an ILEC's network called UNEs in order to serve customers. Given that the ILECs

[133] Order Instituting Rulemaking on the Commission's OwnMotion to Assess and Revise the New Regulatory Framework for Pacific Bell and Verizon California Incorporated. Rulemaking 01-09-001. Investigation 01-09-002.
[134] In addition to the CPUC activity highlighted here, see Appendix J for a timeline of CPUC regulatory activities on competition in 1984 and 2002.

are often in the position of being the monopoly supplier of UNEs to CLECs and are also competitors with CLECs in the local market, the ILECs have an incentive to keep UNE prices high in order to limit the opportunities of their competitors. To provide an environment in which local competition can grow in California and in which consumers have adequate choice, the CPUC has, therefore, actively monitored and set the UNE prices that will promote efficient competition.

The CPUC initially determined what prices Pacific could charge for UNEs in 1999 and also set up an annual process to consider adjustments to recurring UNE costs and prices[135]. In 2001, several CLECs[136] submitted applications to review the costs and prices of unbundled loops and switches. In response, the Commission initiated the UNE reexamination proceeding to address the applicants' requests and subsequently issued D.02-05-042 on May 16 2002 as an interim measure toward lowering UNE rates. As a result Pacific's UNE loop rate is reduced by 15.1 percent from $11.70 to $9.93 and UNE switching rates became 70 percent lower on average.

The Commission also has before it the matter of setting and monitoring UNE costs and prices for Verizon[137], the second largest ILEC in the state. After the CPUC rejected Verizon's initial cost studies[138], Verizon filed a new UNE cost model with the Commission. While AT&T and MCI Telecommunications Corporation[139] filed an alternative cost model, the CPUC issued a decision (D.98-02-106) in a sister phase of this proceeding that concluded that the AT&T/ MCI model had too many structural infirmities to be used as the basis for UNE costs and prices. Verizon recommended that the CPUC suspend efforts to set costs and prices for UNEs until U.S. Supreme Court activity on these matters was concluded[140]. The CPUC rejected this recommendation and cited its intention to go forward with setting Verizon's UNE costs and prices based on the existing record as well as additional information[141]. Moreover, the CPUC may set interim costs and prices for a subset of UNEs, since the process of evaluating the various recommendations on the final costs and prices will likely be complex and lengthy[142].

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[135] CPUC Decision D.99-11-050 adopted Pacific's initial UNE prices. According to D.99-11-050, the UNEs that are eligible for review are those that have experienced at least a 20 percent cost change from the costs approved in D. 98-02-106.
[136] In February 2001, two CLECs, AT&T Communications of California, Inc., Worldcom, Inc. and The Telephone Connection Local Services, LLC, requested the review of UNE costs and prices.
[137] Verizon California, Inc. was formerly known as GTE California, Inc.
[138] See D.96-08-021.
[139] Now known as WorldCom, Inc.
[140] See Verizon's Post-Prehearing Conference Statement, p. 2, dated September 11, 2000
[141] *Assigned Commissioner and Administrative Law Judge's Ruling Setting Scope of This Phase and Announcing Technical Workshops*, p. 4, dated November 11, 2000
[142] Id.

## B. Review of the New Regulatory Framework (NRF) to Promote Competition and Service Quality

Since 1989 the CPUC has regulated the state's ILECs (Pacific, Verizon and Roseville Telephone Company) through an incentive-based, rather than a cost of service type, program. Termed the New Regulatory Framework (NRF), this program is intended to rely on financial incentives and shareholder and ratepayer safeguards to achieve the policy goals of (1) universal service, (2) economic efficiency (3) technological advancement, (4) industry financial and rate stability, (5) full local exchange network utilization, and (6) elimination of cross-subsidies and anti-competitive behavior. The CPUC reviews the NRF to assess its ongoing effectiveness for each ILEC every three years.

The Commission's fourth triennial review of the NRF for Pacific and Verizon began in September 2001, and is being conducted in three phases. Phase 1, which is nearly completed, involves a review of an audit performed on Verizon's cost allocations, accounting practices and procedures, affiliate transactions, the company's tracking and allocation of costs for non-regulated activities, and the safeguards in place to protect ratepayer and competitor interests with respect to non-regulated activities. The CPUC will identify and pursue any needed corrective regulatory measures as a result of audit findings in this phase of its review.

In Phase 2, the Commission will review issues arising from the results of an audit of Pacific's operations that was released in February 2002. This independently conducted audit concludes that Pacific failed to comply with various CPUC accounting and regulatory requirements from 1997 through 1999 and underreported almost $2 billion in profits during that period. It recommends customer refunds of about $350 million. The CPUC will be formally reviewing this audit and allowing parties to submit testimony. As a part of Phase 2, the CPUC will also be reviewing the current state of service quality provided by both companies.

Finally, Phase 3 will assess whether there is a need to reestablish, modify or eliminate original elements of the NRF program, such a rate cap provision and a procedure for sharing telephone company profits in excess of a benchmark level with ratepayers and shareholders. These original NRF elements were suspended in the course of prior triennial reviews.[143] All phases of this current NRF review are scheduled to be completed by the spring of 2003.

[143] The reestablishment of rate caps and earnings revenue sharing mechanisms are also issues being considered by the Legislature in AB 2898 (Pescetti) and AB 2958 (Wright). If AB 2898 becomes law as currently written, the CPUC will be prohibited from implementing rate caps or sharing mechanisms under the NRF until at least January 1, 2007. If instead AB 2958 becomes law in its present form, these NRF prohibitions will be limited to Pacific and Verizon.

## C. CPUC Seeks to Preserve Access and Choice for DSL Service

The CPUC's efforts to promote competition also includes advocacy before the FCC. The CPUC has recently taken positions in two key FCC dockets that will affect how broadband services are delivered to consumers. In February 2002, the FCC proposed reclassifying the regulatory framework for the transport portion of broadband access to the Internet from "common carriage" to "private carriage".[144] This change of classification would remove the regulatory obligations of interconnection and unbundling for those providers of the transmission facilities for information services, including DSL service. In almost all cases, ILECs have monopoly control over of the "last mile" of transmission facilities, also known as the local loop, necessary to provide DSL service.

In light of the TA '96's goal of furthering the deployment of advanced telecommunications services to all Americans, the CPUC has urged the FCC to continue to include facilities-based DSL service as a common carrier transmission service subject to unbundling obligations. In Comments filed in May, the CPUC has pointed out that removing the interconnection and unbundling obligations from the ILECs would impair the potential for consumer choice and access to broadband services in California.[145] As noted above, forty-five percent of California residents with broadband access live in areas where DSL is the only option for broadband Internet access. Cable modem, satellite, and wireless methods of broadband access are not comparable alternatives at this point. Therefore, allowing ILECs to control the transmission segment of DSL service would essentially pave the way for monopoly control of DSL service.

In a separate but related proceeding, the FCC has raised the question of deregulating the broadband services provided by the ILECs in order to spur investment, innovation, and lower prices.[146] Some have suggested in the proceeding that cable modem, satellite and wireless methods of broadband access have become acceptable alternatives for the broadband offerings of the ILECs, typically DSL and ISDN.[147]

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[144] NPRM in FCC Common Carrier Docket No. 02-33 issued February 15, 2002.
[145] Comments of CPUC filed May 3, 2002 in FCC Common Carrier Docket No. 02-33
[146] NPRM in FCC CC Docket No. 01-337 issued December 20, 2001.
[147] ISDN refers to Integrated Services Digital Network, an advanced service that was not discussed in this initial competition report. ISDN is essentially is a service provided by local telephone companies which modifies regular telephone lines so that they can transmit data almost five times as fast as the fastest analog modems. ISDN also allows the transmission of not only data, but a combination of data, voice, and video simultaneously on one line.

The CPUC has taken the position that deregulation of these broadband services would be premature. Because the ILECs are still the dominant provider of wireline broadband services, deregulation "would jeopardize the continued ability of the FCC and the States to ensure that services used for the transmission of voice telecommunications continue to be available at high quality and reasonable rates."[148] The CPUC noted that cable modem, satellite, and wireless broadband options are not available to as many consumer groups as is DSL service. While it is true these options exist in the national market, it is the local market that matters for each consumer, since a local provider is necessary for broadband access. Until multiple broadband providers serve each of the local markets, deregulating the ILECs will stymie investment, innovation and competition.

## D. Local Number Portability

### *i. Wireline Number Portability of Growing Importance to CLEC Local Market Share*

***Switching Phone Numbers: A Barrier to Competition*** – In an openly competitive telecommunications marketplace, consumers need to be able to choose and move freely among multiple telecommunications service providers. Especially in the local telephone market, consumers may be deterred from switching to a new service provider if switching requires consumers to assume a new phone number. Congress, the FCC and the CPUC addressed this problem by requiring most wireline phone companies to allow customers to switch between phone service providers while retaining their original telephone number.[149] The process of switching is called number porting.

***Number Porting in California*** – Local phone number porting among wireline carriers began in California in May 1998. At the end of 2000, 32 local service providers were on record as active participants in number porting; either having lost customers that had taken their numbers to a competitive provider, or having gained customers that had brought their number with them. Only a small percentage of California customers, however, exercise the number porting option. After over three years of experience with number portability (from May 1998 to July 2001), about 5 percent of the local market[150] had switched service providers while retaining the original phone number and remaining a customer of the alternative provider as of July 2001.[151]

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[148] Comments of CPUC filed April 22, 2002 in FCC Common Carrier Docket No. 01-337
[149] Section 251(b)(2) of the 1934 Communications Act as added by the 1996 Telecommunications Act, and First Report and Order and Further Notice of Proposed Rulemaking, 11 FCC Rcd. 8352, Paragraph 165.
[150] Market share in this paragraph is determined by percentage of numbers assigned to customers.

Based on the data, number porting is none-the-less more critical to CLECs than to ILECs competing in the state and, thus, the CPUC supports it continued use. Most number porting is used to enable customers to leave ILECs in order to take service from a CLEC. While ported customers account for a small net loss to ILECs, they constitute a significant share of the CLEC customer base. While less than 5 percent of ILEC customers ported to CLECs, this flow of customers contributes to at least one quarter of all CLEC business and is growing. At the end of 2000, the nearly 1.2 million numbers ported to CLECs accounted for 25 percent of CLEC assigned customers. By July 2001, the over 1.6 million numbers ported to CLECs comprised 29 percent of CLEC assigned customers. If number porting were not available, CLECs would presumably lose one quarter of their local market share.[152] The percentage of the customer base that CLECs gain from those customers that do port numbers may be crucial to their survival.

Seven dominant CLECs operating in California benefit the most from porting. Of the numbers ported to CLECs at the end of 2000, 88 percent went to these CLECs. Of the numbers ported to CLECs by July 2001, 83 percent went to the same seven CLECs[153].

### ii. Wireless Number Portability Could Increase Competition

The FCC has mandated that the wireless industry implement number portability by November 24, 2002.[154] Many wireless carriers have opposed the mandate. On July 26, 2001, Verizon Wireless petitioned the FCC for relief from the requirement to deploy number portability on the basis that the extent of competition in the wireless industry is sufficient without it. A decision on this petition is pending with the FCC.[155]

The CPUC believes that wireless number portability is crucial to enhancing competition in the wireless industry as well as between the wireline and wireless industry. The CPUC supports the FCC's previous conclusions that number portability is essential to a competitive marketplace. In response to the Verizon Wireless petition and in other filings before FCC, the Commission has argued in favor of retaining the November 24, 2002 deadline for wireless number portability, citing TA '96, "which

[151] The 5 percent accounts for those customers that were still with the competitive service provider as of July 2001. It does not account for customers that switched providers and then returned to the original provider before July 2001.
[152] Assuming that these customers would not switch carriers if they had to change their telephone numbers.
[153] The seven CLECs are: Allegiance Telecom of California, Inc., AT&T Communications of California, Inc., Cox California Telecom, LLC, Focal Communications Corporation, MPower Communications, Pac-West Telecommunications, Inc., and XO Communications.
[154] First Report and Order in the Matter of Telephone Number Portability, Docket No. 95-116, FCC 96-286, Paragraph 4
[155] As of November 15, 2001.

evinced a Congressional intent for competition to develop among and within all telecommunications markets." [156]

Appendix A & B, Telecomunications Competition Report 6-5-02

Appendix C, D & E, Telecomunications Competition Report 6-5-02

Appendix F, Telecomunications Competition Report 6-5-02

Appendix G, H & J, Telecomunications Competition Report 6-5-02

Appendix I, Telecomunications Competition Report 6-5-02

[156] Comments of the California Public Utilities Commission and of the People of the State of California filed with the FCC in CC Docket No. 99-200 and WT Docket No. 01-184 on September 21, 2001.